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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. **Application Number** 09/905,718 **TRANSMITTAL** Filing Date May 16, 2002 **FORM** First Named Inventor Willson, Carlton G. et al. Art Unit (to be used for all correspondence after initial filing) 1762 **Examiner Name** Bernard D. Pianalto Attorney Docket Number PA27/UTS-26-03Q12 Total Number of Pages in This Submission

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Applicant claims small entity status. See 37 CFR 1.27

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Application Number	09/905,718			
Filing Date	May 16, 2002			
First Named Inventor	Willson, Carlton G.			
Examiner Name	1762			
Art Unit	Bernard D. Pianalto			
Attorney Docket No.	PA27/UTS-26-03Q12			

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1004 770	2004 385	Reissue filing fee		1403	290	2403	145	Request for oral hearing	
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SUBMITTED BY

Name (Print/Type) Kenneth C. Brooks Registration No. (Aktomev/Agent) 38393 Telephone 512-527-0104

Signature Junifor Junifor Date January 8, 2004

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#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Watts et al. PATENT APPLICATION Serial No.: 09/905,718 Group Art Unit: 1762

Filing Date: May 16, 2002 Examiner: Bernard D. Pianalto For: METHOD AND SYSTEM FOR FABRICATING NANOSCALE PATTERNS

IN LIGHT CURABLE COMPOSITIONS USING AN ELECTRIC FIELD

#### INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents Alexandria, VA 22313

#### Sir:

The following information is submitted in compliance with Applicants' duty of disclosure under 37 C.F.R. § 1.56. Form PTO-1449 and a copy of each reference recited below accompanies this document. It is respectfully requested that the cited information be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

#### ISSUED PATENTS

<u>Patent Number</u>	<u>Inventor</u>	<u> Grant Date</u>
3,807,027	Heisler	04/30/1974
3,807,029	Troeger	04/30/1974
3,811,665	Seelig	05/21/1974
4,062,600	Wyse	12/13/1977
4,098,001	Watson	07/04/1978
4,155,169	Drake et al.	05/22/1979
4,202,107	Watson	05/13/1980
4,267,212	Sakawaki ·	05/12/1981
4,337,579	De Fazio	07/06/1982
4,355,469	Nevins et al.	10/26/1982
4,414,750	De Fazio	11/15/1983
4,440,804	Milgram	04/03/1984
4,451,507	Beltz et al.	05/29/1984

4,544,572	Sandvig	10/01/1985
4,610,442	Oku et al.	09/09/1986
4,694,703	Routson	09/22/1987
4,731,155	Napoli et al.	03/15/1988
4,763,886	Takei	08/16/1988
4,929,083	Brunner	05/29/1990
4,959,252	Bonnebat et al.	09/25/1990
5,072,126	Progler	12/10/1991
5,110,514	Soane	05/05/1992
5,126,006	Cronin et al.	06/30/1992
5,204,739	Domenicali	04/20/1993
5,240,550	Boehnke et al.	08/31/1993
5,348,616	Hartman et al.	09/20/1994
5,392,123	Marcus et al.	02/21/1995
5,425,964	Southwell et al.	06/20/1995
5,452,090	Progler et al.	09/19/1995
5,480,047	Tanigawa et al.	01/02/1996
5,512,131	Kumar et al.	04/30/1996
5,515,167	Ledger et al.	05/07/1996
5,545,367	Bae et al.	08/13/1996
5,566,584	Briganti	10/22/1996
5,633,505	Chung et al.	05/27/1997
5,723,176	Keyworth et al.	03/03/1998
5,724,145	Kondo et al.	03/03/1998
5,747,102	Smith et al.	05/05/1998
5,753,014	Van Rijn	05/19/1998
5,760,500	Kondo et al.	06/02/1998
5,772,905	Chou	06/30/1998
5,776,748	Singvi et al.	07/07/1998
5,779,799	Davis	07/14/1998
5,802,914	Fassler et al.	09/08/1998
5,804,474	Sakaki et al.	09/08/1998
5,877,036	Kawai	03/02/1999
5,877,861	Ausschnitt et al.	03/02/1999
5,884,292	Baker et al.	03/16/1999
5,888,650	Calhoun et al.	03/30/1999
5,900,160	Whitesides et al.	05/04/1999
5,912,049	Shirley	06/15/1999
5,942,871	Lee	08/24/1999

5,948,470	Harrison et al.	09/07/1999
5,952,127	Yamanaka	09/14/1999
6,038,280	Rossiger et al.	03/14/2000
6,039,897	Lochhead et al.	03/21/2000
6,046,056	Parce et al.	04/04/2000
6,051,345	Huang	04/18/2000
6,074,827	Nelson et al.	06/13/2000
6,091,485	Li et al.	07/18/2000
6,125,183	Jiawook et al.	09/26/2000
6,128,085	Buermann et al.	10/03/2000
6,143,412	Schueller et al.	11/07/2000
6,168,845	Fontana, Jr. et al.	01/02/2001
6,180,239	Whitesides et al.	01/30/2001
6,204,922	Chalmers	03/20/2001
6,218,316	Marsh	04/17/2001
6,234,379	Donges	05/22/2001
6,245,213	Olsson et al.	06/12/2001
6,334,960	Willson et al.	01/01/2002

### PENDING PATENT APPLICATIONS

Serial Number 09/698,317	<u>Inventor</u> Choi et al.	<u>Filing Date</u> 10/27/2000
09/907,512	Sreenivasan et al.	07/16/2000
09/908,455	Choi et al.	10/27/2000
09/908,765	Willson et al.	07/19/2001
09/920,341	Choi et al.	08/01/2001
09/934,248	Choi et al.	08/21/2001
09/976,681	Bailey et al.	10/12/2001
10/178,947	Watts et al.	06/24/2002

### FOREIGN PATENT DOCUMENTS

<u>Document Number</u>	<u>Inventor</u>	<u>Pub. Date</u>
DE 2800476	Lamprecht et al.	07/13/1978
EP 244884	Ponjee	03/03/1987
JP 1-196749	Matsumoto et al.	08/08/1989
WO 92/17883	Olsson	10/18/1992
EP 733455	Anderhub et al.	09/25/1996
WO 98/10121	Olsson et al.	03/12/1998

WO	99/45753	Wikstrom	09/10/1999
DE	19648844	Muller et al.	09/18/1997
WO	99/63535	Olsson	12/09/1999
WO	01/33232	Andeen et al.	05/10/2001
WO	01/33300	Navarro	05/10/2001
WO	01/53889	Ling et al.	07/26/2001
WO	01/63361	Heidari et al.	08/30/2001
WO	01/69317	Montelius et al.	09/20/2001
WO	01/79589	Hallberg	10/25/2001
WO	01/79591	Hallberg et al.	10/25/2001
WO	01/79592	Hallberg et al.	10/25/2001
WO	01/79933	Heidari	10/25/2001
WO	01/90816	Heidari	10/25/2001

#### NON-PATENT DOCUMENTS

- Stewart, D. "A Platform with Six Degrees of Freedom," Proc. of Inst. Mech. Engrs., 1965, 180, 371-378.
- Paros, J.M. Weisbord, L.; "How to Design Flexure Hinges," Machine Design, 1965, 151-156.
- Raibert, M.H. Craig, J.J.; "Hybrid Position/Force Control of Manipulators," 1981, 102, 126-133.
- Lin. "Multi-Layer Resist Systems", Introduction of Microlithography," American Chemical Society, pp. 287-350, 1983.
- Hogan, Neville. "Impedance Control: An Approach to Manipulation," Journal of Dynamic Systems, Measurement and Control, 1985, 107, 1-7.
- Cowie, J.M.G. "Polymers: Chemistry and Physics of Modern Materials," 2<sup>nd</sup> Ed., 1991, pp. 408-409.
- Hollis, Ralph et al. "A Six-Degree-of-Freedom Magnetically Levitated Variable Compliance Fine-Motion Wrist: Design, Modeling and Control," IEEE Transactions on Robotics and Automation, 1991, 7, 320-332.

- Tomita, Y. et al. "6-Axes Motion Control Method for Parallel-Linkage-Type Fine Motion Stage," Journal of Japan Society of Precision Engineering, 1992, 118-124.
- Slocum, Alexander. "Precision Machine Design: Macromachine Design Philosophy and its Applicability to the Design of Micromachines," Proc. of IEEE Micro Mech. Systems Workshop, 1992, 37-42.
- Krug, Herbert et al. "Fine Patterning of Thin Sol-Gel Films,"
   Journal of Non-Crystalline Solids, 1992, 447-450.
- Arai, T et al. "Calibration and Basic Motion of a Micro Hand Module," Proc. of IECON, 1993, 1660-1665.
- Peng, Zhi-Xin et al. "Compliant Motion Control of Kinematically Redundant Manipulators," IEEE Transactions on Robotics and Automation, 1993, 9, 831-837.
- Rong, Y. et al. "Design and Analysis of Flexure-Hinge Mechanism Used in Micro-Positioning Stages," ASME, 1994, 2, 979-985.
- Hashimoto, M. et al. "Design and Characteristics of Parallel Link Compliant Wrist," IEEE International Conference on Robotics and Automation, 1994, 2457-2462.
- Merlet, J.P. "Parallel Manipulators: State of the Art and Perspectives," Advanced Robotics, 1994, 8, 589-596.
- Ananthasuresh, S. et al. "Strategies for Systematic Synthesis of Compliant MEMES," ASME, 1994, 2, 677-686.
- Chou et al. "Imprint of Sub-25 nm Vias and Trenches in Polymers," Applied Physics Letters, 67(21), pp. 3114-3116, 1995.
- Arai, T. et al. "Development of a New Parallel Manipulator with Fixed Linear Actuator," Proc. of Japan/USA Symposium on Flexible Automation, 1996, 1, 145-149.
- Chou et al. "Imprint Lithography with 25-Nanometer Resolution," Science, vol. 272, Apr. 5, 1996, pp. 85-87.
- Howell, L.L.; Midha, A.; "Loop-Closure Theory of the Analysis and Synthesis of Compliant Mechanisms", Journal of Mechanical Design, 1996, 118, 121-125.

- Haisma, J. et al. "Mold-Assisted Nanolithography: A Process for Reliable Pattern Replication," Journal of Vacuum Science and Technology, 1996, 14, 4124-4128.
- Chou et al. "Imprint Lithography with Sub-10 nm Feature Size and High Throughput", Microelectronic Engineering 35, 1997, 237-240.
- Pernette, Eric et al. "Design of Parallel Robots in Microrobotics," Robotica, 1997, 15, 417-420.
- Rong, L. et al. "Dynamics of Parallel Mechanism with Direct Compliance Control," IEEE, 1997, 1753-1758.
- Mittal, Samir et al. "Precision Motion Control of Magnetic Suspension Actuator Using a Robust Nonlinear Compensation Scheme," IEEE/ASME Transactions on Mechatronics, 1997, 2, 268-280.
- Physik Instruments, Product Catalog for Micropositioning, 1997.
- Williams, Mark et al. "Six Degree of Freedom Mag-Lev Stage Development," SPIE, 1997, 3051m 856-867.
- Lee, Chang-Woo et al. "Ultraprecision Stage for Alignment of Wafers in Advanced Microlithography," Precision Engineering, 1997, 21, 113-122.
- Kanetomo, M. et al. "Robot for Use in Ultrahigh Vacuum,"
  Solid State Tech., 1997, 63-72.
- Goldfarb, M. et al. "Compliant Micromanipulator Design for Scaled Bilateral Telemanipulation of Small-Scale Environments," ASME, Dynamic Systems and Control Div., 1998, 64, 213-218.
- Koseki, Y. et al. "Design and Accuracy Evaluation of High-Speed and High Precision Parallel Mechanism," Proc. of IEEE, Intl. Conf. on Robotics & Automation, 1998, 1340-1345.
- Kim, Won-Jong et al. "High Precision Magnetic Levitation Stage for Photolithography," Precision Engineering, 1998, 22, 66-77.

- Mansky, P. et al. "Large-Area Domain Alignment in Block Copolymer Thin Films Using Electric Fields," Macromolecules, 1998, 31, 4399-4401.
- Wang, W. et al. "Passive Compliance Versus Active Compliance in Robot-Based Automated Assembly Systems," Industrial Robot, 1998, 25, 48-57.
- Scheer, H.C. et al. "Problems of Nanoimprinting Technique for Nanometer Scale Pattern Definition," Journal of Vacuum Science and Technology, 1998, 16, 3917-3921.
- Xia, Y. et al. "Soft Lithography," Annu. Rev. Mater. Sci., 1998, 28, 153-184.
- Xia et al. "Soft Lithography," Agnew. Chem. Int. Ed., 1998, 37, 550-575.
- Tajbakhsh, H. et al. "Three-Degree-of-Freedom Optic Mount for Extreme Ultraviolet Lithography," ASPE, 1998, 18, 359-362.
- Lee, Dong Sung et al. "Ultra Precision Positioning System for Servo Motor-Piezo Actuator Using Dual Servo Loop and Digital Filter Implementation," ASPE, 1998, 18, 287-290.
- Wu, Wei et al. "Large Area High Density Quantized Magnetic Disks Fabricated Using Nanoimprint Lithography," 1998, Journal of Vacuum Science and Technology, 1998, 16, 3825-3829.
- Ohya, Y. et al. "Development of 3-DOF Finger Module for Micro Manipulation," Proc. of IEEE, Intl. Conf. on Intelligent Robots and Systems, 1999, 894-899.
- Tanikawa, T. et al. "Development of Small-Sized 3 DOF Finger Module in Micro Hand for Micro Manipulation," Proc. of IEEE, Intl. Conf. on Intelligent Robots and Systems, 1999, 876-881.
- Colburn, M. et al. "Step and Flash Imprint Lithography: New Approach to High-Resolution Patterning," Proc. of SPIE, 1999, 3676, 379-389.
- Lucas Aerospace, Free-Flex Pivot Catalog. 1999.
- Goldfarb, M. et al. "A Well-Behaved Revolute Flexure Joint

- for Compliant Mechanism Design," Journal of Mech. Design, 1999, 121, 424-429.
- Geodetic Technology, G1000-PC Power Series Specifications, 1999, www.hexapods.com.
- Hexel Corporation, Tornado 2000 System Specifications, 1999, www.hexel.com.
- Physik Instruments, PI Online-Catalog, 1999, www. Physikinstrumetns.com.
- Chou, Stephen et al. "Lithographically-induced Self Assembly of Periodic Micropillar Arrays," Journal of Vacuum Science and Technology, 1999, 17, 3197-3202.
- Ruchhoeft, P. et al. "Patterning Curved Surfaces: Template Generation by Ion Beam Proximity Lithography and Relief Transfer by Step and Flash Imprint Lithography," Journal of Vacuum Science and Technology, 1999, 17, 2965-2982.
- Vanderbilt University Office of Transfer Technology; VU 9730 Specifications for Improved Flexure Device; 2001, www.vanderbilt.edu.
- Stix, Gary. "Getting More from Moore's", Scientific American, 2001, www.scientificamerica.com.
- Gokan et al. "Dry Etch Resistance of Organic Materials," J. Electrochem. Soc. 130:1, 143-146 (Jan. 1983).
- Kotachi et al. "Si-Containing Positive Resist for ArF Excimer Laser Lithography," J. Photopolymer Sci. Technol. 8(4) 615-622, 1995.

- Krauss, et al. "Fabrication of Nanodevices Using Sub-25nm Imprint Lithography, "Appl. Phys. Lett., 67(21), 3114-3116, 1995.
- Nguyen, A. Q. "Asymmetric Fluid-Structure Dynamics in Nanoscale Imprint Lithography," University of Texas at Austin, August, 2001.

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Sheet 1 of 9

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Application Number	09/905,718			
Filing Date	May 16, 2002			
First Named Inventor	Watts et al.			
Group Art Unit	1762			
Examiner Name	Bernard D. Pianalto			
Attorney Docket Number	PA27/UTS-26-03q12			

V.S. Patent Document  Visit Code  Name of Patentee or Applicant  Date of Publication of Where Relevant  Where Relevant								
Examiner Initials*	Cite No. <sup>1</sup>	Number	Kind Code <sup>2</sup> (if known)	of Cited Document	Cited Document MM-DD-YYYY	Where Relevant Passages or Relevant Figures Appear		
	A1	3,807,027		Heisler	04-30-1974			
10.00	A2	3,807,029		Troeger	04-30-1974			
	A3	3,811,665		Seelig	05-21-1974			
	A4	4,062,600		Wyse	12-13-1977			
	A5	4,098,001		Watson	07-04-1978			
	A6	4,155,169		Drake et al.	05-22-1979			
	A7	4,202,107		Watson	05-13-1980			
	A8	4,267,212		Sakawaki	05-12-1981			
	A9	4,337,579		De Fazio	07- 06-1982			
	A10	4,355,469		Nevins et al.	10-26-1982			
	A11	4,414,750		De Fazio	11-15-1983			
	A12	4,440,804		Milgram	04-03-1984			
	A13	4,451,507		Beltz et al.	05-29-1984			
	A14	4,544,572		Sandvig et al.	10-01-1985			
	A15	4,610,442		Oku et al.	09-09-1986			
-	A16	4,694,703		Routson	09-22-1987			
	A17	4,731,155		Napoli et al.	03-15-1988			
	A18	4,763,886		Takei	08-16-1988			
	A19	4,929,083		Brunner	05-29-1990			
	A20	4,959,252		Bonnebat et al.	09-25-1990			
	A21	5,072,126		Progler	12-10-1991			
	A22	5,110,514		Soane	05-05-1992			
	A23	5,126,006		Cronin et al.	06-30-1992			
	A24	5,204,739		Domenicali	04-20-1993			
	A25	5,240,550		Boehnke et al.	08-31-1993			
	A26	5,348,616		Hartman et al.	09-20-1994			
	A27	5,392,123		Marcus et al.	02-21-1995			
	A28	5,425,964		Southwell et al.	06-20-1995			
	A29	5,452,090		Progler et al.	09-19-1995			
	A30	5,480,047		Tanigawa et al.	01-02-1996			
	A31	5,512,131		Kumar et al.	04-30-1996			
	A32	5,515,167		Ledger et al.	05-07-1996			
	A33	5,545,367		Bae et al.	08-13-1996			
	A34	5,566,584		Briganti	10-22-1996			
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Application Number 09/905,718			
Filing Date	May 16, 2002		
First Named Inventor	Watts et al.		
Group Art Unit	1762		
Examiner Name	Bernard D. Pianalto		
Attorney Docket Number	PA27/UTS-26-03q12		

	U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No.1	U.S. Patent Do	cument Kind Code <sup>2</sup> (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
	A35	5,633,505		Chung et al.	05-27-1997		
	A36	5,723,176		Keyworth et al.	03-03-1998		
	A37	5,724,145		Kondo et al.	03-03-1998		
	A38	5,747,102		Smith et al.	05-05-1998		
	A39	5,753,014		Van Rijn	05-19-1998		
	A40	5,760,500		Kondo et al.	06-02-1998		
	A41	5,772,905		Chou	06-30-1998		
	A42	5,776,748		Singhvi et al.	07-07-1998		
	A43	5,779,799		Davis	07-14-1998		
	A44	5,802,914		Fassler et al.	09-08-1998		
	A45	5,804,474		Sakaki et al.	09-08-1998		
	A46	5,877,036		Kawai	03-02-1999		
	A47	5,877,861		Ausschnitt et al.	03-02-1999		
	A48	5,884,292		Baker et al.	03-16-1999		
	A49	5,888,650		Calhoun et al.	03-30-1999		
	A50	5,900,160		Whitesides et al.	05-04-1999		
	A51	5,912,049		Shirley	06-15-1999		
	A52	5,942,871		Lee	08-24-1999		
	A53	5,948,470		Harrison et al.	09-07-1999		
	A54	5,952,127		Yamanaka	09-14-1999		
	A55	6,038,280		Rossiger et al.	03-14-2000		
<del></del>	A56	6,039,897		Lochhead et al.	03-21-2000		
	A57	6,046,056		Parce et al.	04-04-2000		
	A58	6,051,345		Huang	04-18-2000		
	A59	6,074,827	İ	Nelson et al.	06-13-2000		
	A60	6,091,485		Li et al.	07-18-2000		
	A61	6,125,183		Jiawook et al.	09-26-2000		
	A62	6,128,085		Buermann et al.	10-03-2000	· · · · · · · · · · · · · · · · · · ·	
	A63	6,143,412		Schueller et al.	11-07-2000		
	A64	6,168,845	1	Fontana, Jr. et al.	01-02-2001		
	A65	6,180,239		Whitesides et al.	01-30-2001		
	A66	6,204,922	1	Chalmers	03-20-2001		
	A67	6,218,316	1	Marsh	04-17-2001		
	A68	6,234,379		Donges	05-22-2001		
	A69	6,245,213		Olsson et al.	06-12-2001		
	A70	6,334,960	T	Willson et al.	01-01-2002		

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Examiner Name	Bernard D. Pianalto			
Attorney Docket Number	PA27/UTS-26-03q12			

				FOREIGN	PATENT DOCUMENTS			
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	A71	DE	2800476		Lamprecht et al.	07-13-1978		
	A72	EP	244884		Ponjee	03-03-1987		
	A73	JP	1-196749		Matsumoto et al.	08-08-1989		
	A74	wo	92/17883		Olsson	10-15-1992		
	A75	EP	733455		Anderhub et al.	09-25-1996		
	A76	wo	98/10121		Olsson et al.	03-12-1998		
	A77	wo	99/45753		Wikström	09-10-1999		
	A78	DE	19648844		Muller et al.	09-18-1997		
	A79	wo	99/63535		Olsson	12-09-1999		
	A80	wo	01/33232		Andeen et al.	05-10-2001		
	A81	wo	01/33300		Navarro	05-10-2001		
	A82	wo	01/53889		Ling et al.	07-26-2001		
	A83	wo	01/63361		Heidari et al.	08-30-2001		
	A84	wo	01/69317		Montelius et al.	09-20-2001		
	A85	wo	01/79589		Hallberg	10-25-2001		
	A86	wo	01/79591		Hallberg et al.	10-25-2001		
	A87	wo	01/79592		Hallberg et al.	10-25-2001		
	A88	wo	01/79933		Heidari	10-25-2001		
	A89	wo	01/90816		Heidari	11-29-2001		<u> </u>
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	A90	STEWART, "A Platform with Six Degrees of Freedom," Proc. of Inst. Mech. Engrs., 1965, pp. 371-378, vol. 180 pt. 1, no. 15.	
	A91	PAROS et al., "How to Design Flexure Hinges," Machine Design, Nov. 25, 1965, pp. 151-156.	
	A92	RAIBERT et al., "Hybrid Position/Force Control of Manipulators," Transactions of the ASME, Journal of Dynamic Systems, Measurement and Control, June 1981, pp. 126-133, vol. 102.	
	A93	Gokan et al., "Dry Etch Resistance of Organic Materials," J. Electrochem. Soc. 130:1, 143-146 (Jan. 1983)	
	A94	LIN, "Multi-Layer Resist Systems", Introduction of Microlithography," American Chemical Society, 1983, pp. 287-350, IBM T.J. Watson Research Center, Yorktown Heights, New York 10598.	
	A95	HOGAN, "Impedance Control: An Approach to Manipulation," Journal of Dynamic Systems, Measurement and Control, March 1985, pp. 1-7, vol. 107.	
	A96	COWIE, "Polymers: Chemistry and Physics of Modern Materials," 1991, pp. 408-409, 2 <sup>nd</sup> Ed, Chapman and Hall, a division of Routledge, Chapman and Hall, Inc., 29 West 35 <sup>th</sup> Street, NY, NY 10001-2291.	
	A97	HOLLIS et al., "A Six-Degree-of-Freedom Magnetically Levitated Variable Compliance Fine Motion Wrist:  Design, Modeling and Control," IEEE Transactions on Robotics and Automation, 1991, pp. 320-332, vol. 7, no. 3.	
	A98	TOMITA et al., "A 6-Axes Motion Control Method for Parallel-Linkage-Type Fine Motion Stage," Journal of Japan Society of Precision Engineering, 1992, pp. 118-124.	
	A99	SLOCUM, "Precision Machine Design: Macromachine Design Philosophy and its Applicability to the Design of Micromachines," Micro Electro Mechanical Systems, 1992, pp. 37-42.	
	A100	KRUG et al., "Fine Patterning of Thin Sol-Gel Films," Journal of Non-Crystalline Solids, 1992, pp. 447-450, vol. 147 & 148.	

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INF	ORMATION	DISC	LOSURE	Filing Date	May 16, 2002	
STA	STATEMENT BY APPLICANT			First Named Inventor	Watts et al.	
				Group Art Unit	1762	
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Sheet 5 of 9				Attorney Docket Number	PA27/UTS-26-03q12	

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	A101	ARAI et al., "Calibration and Basic Motion of a Micro Hand Module," Proc. of IEEE, 1993, pp. 1660-1665.	
	A102	PENG et al., "Compliant Motion Control of Kinematically Redundant Manipulators," IEEE Transactions on Robotics and Automation, December 1993, pp. 831-837, vol. 9, no. 6.	
	A103	RONG et al., "Design and Analysis of Flexure-Hinge Mechanism Used in Micro-Positioning Stages," ASME, PED. Vol. 68-2, Manufacturing Science and Engineering, 1994, pp. 979-985, vol. 2.	
	A104	HASHIMOTO et al., "Design and Characteristics of Parallel Link Compliant Wrist," IEEE International Conference on Robotics and Automation, 1994, pp. 2457-2462.	,
	A105	MERLET, "Parallel Manipulators: State of the Art Perspectives," Advanced Robotics, 1994, pp. 589-596, vol. 8.	
	A106	ANANTHASURESH et al., "Strategies for Systematic Synthesis of Compliant MEMS," ASME, DSC-vol. 55-2, Dynamic Systems and Control, 1994, pp. 677-686, vol. 2.	
111	A107	Kotachi et al., "Si-Containing Positive Resis for ArF Laser Lithography," J. PhotopolymerSci. Tevhnol. 8(4) 615-622, 1995.	
	A108	Krauss et al., "Fabrication of Nanodevices Using Sub-25nm Imprint Lithography," Appl. Phys. Lett 67(21), 3114-3116, 1995	
	A109	CHOU et al., "Imprint of Sub-25 nm Vias and Trenches in Polymers," Applied Physics Letters, November 20, 1995, pp. 3114-3116, vol. 67(21).	
	A110	ARAI et al., "Development of a New Parallel Manipulator with Fixed Linear Actuator," Proc. of Japan/USA Symposium on Flexible Automation, ASME, 1996, pp. 145-149, vol. 1.	
	A111	CHOU et al., "Imprint Lithography with 25-Nanometer Resolution," Science, Apr. 5, 1996, pp. 85-87, vol. 272.	

Examiner	Date	
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	STA	ATEMENT BY	/ AF	PPLICANT	First Named Inventor	Watts et al.
					Group Art Unit	1762
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	Sheet	6	of	9	Attorney Docket Number	PA27/UTS-26-03q12

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	4440	HOWELL et al., "Loop-Closure Theory for the Analysis and Synthesis of Compliant Mechanisms," Journal of	:
	A112	Mechanical Design, March 1996, pp. 121-125, vol. 118.	
	4440	HAISMA et al., "Mold-Assisted Nanolithography: A Process for Reliable Pattern Replication," Journal of	•
	A113	Vacuum Science and Technology, Nov/Dec 1996, pp. 4124-4128, vol. B 14(6).	
		CHOU et al., "Imprint Lithography with Sub-10nm Feature Size and High Throughput," Microelectronic	
	A114	Engineering, 1997, pp. 237-240, vol. 35.	
	A115	PERNETTE et al., "Design of Parallel Robots in Microrobotics," Robotica, July-August 1997, pp. 417-420,	
:	A115	vol. 15, no. 4.	
	A116	RONG et al., "Dynamics of Parallel Mechanism with Direct Compliance Control," IEEE, 1997, pp. 1753-	
	A116	1758.	
	1447	MITTAL et al., "Precision Motion Control of Magnetic Suspension Acutator Using a Robust Nonlinear	
	A117	Compensation Scheme," IEEE/ASME Transactions on Mechatronics, Dec. 1997, pp. 268-280, vol. 2, no. 4.	
	A118	Physik Instrumente, Product Catalog for Micropositioning from www.physikinstrumente.com, 1997.	
			ļ
	A119	WILLIAMS et al., "Six Degree of Freedom Mag-Lev Stage Development," SPIE, 1997, pp. 856-867, vol. 3051.	
		LEE et al., "An Ultraprecision Stage for Alignment of Wafers in Advanced Microlithography," Precision	
	A120	Engineering, 1997, pp. 113-122, vol. 21, Elsevier Science Inc., 655 Avenue of the Americas, NY, NY 10010.	
	A121	KANETOMO et al., "Robot for Use in Ultrahigh Vacuum," Solid State Tech., August 1997, pp. 63-64, 69-72.	
	1400	GOLDFARB et al., "Compliant Micromanipulator Design for Scaled Bilateral Telemanipulation of Small-	
	A122	Scale Environments," Proc. of the ASME, Dynamic Systems and Control Div., 1998, pp. 213-218, vol. 64.	

Examiner Signature	Date Considered

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9 **Attorney Docket Number** PA27/UTS-26-03q12 Sheet of

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:	A123	KOSEKI et al., "Design and Accuracy Evaluation of High-Speed and High-Precision Parallel Mechanism,"	
	A123	Proc. of the 1998 IEEE, Intl. Conf. on Robotics & Automation, May 1998, pp. 1340-1345, Leuven, Belgium.	
	A124	KIM et al., "High Precision Magnetic Levitation Stage for Photolithography," Precision Engineering, 1998, pp.	
	AIZ4	66-77, vol. 22, Elsevier Science Inc., 655 Avenue of the Americas, NY, NY 10010.	
	A125	MANSKY et al., "Large-Area Domain Alignment in Block Copolymer Thin Films Using Electric Fields,"	
	Aizs	Macromolecules, 1998, pp. 4399-4401, vol. 31.	
****	A126	WANG et al., "Passive Compliance Versus Active Compliance in Robot-Based Automated Assembly	
	A120	Systems," Industrial Robot, 1998, pp. 48-57, vol. 25, no. 1, MCB University Press.	
	A127	SCHEER et al., "Problems of the Nanoimprinting Technique for Nanometer Scale Pattern Definition,"	
	AILI	Journal of Vacuum Science and Technology, Nov/Dec 1998, pp. 3917-3921, vol. B 16(6).	
	A128	XIA et al., "Soft Lithography," Annu. Rev. Mater. Sci., 1998, pp. 153-184, vol. 28.	
	A129	XIA et al., "Soft Lithography," Agnew. Chem. Int. Ed., 1998, pp. 550-575, vol. 37.	
	A130	TAJBAKHSH et al., "Three-Degree-of-Freedom Optic Mount for Extreme Ultraviolet Lithography," ASPE, 1998, pp. 359-362, vol. 18.	
	A131	LEE et al., "Ultra Precision Positioning System for Servo Motor-Piezo Actuator Using the Dual Servo Loop and Digital Filter Implementation," ASPE, 1998, pp. 287-290, vol. 18.	
	A132	WU et al., "Large Area High Density Quantized Magnetic Disks Fabricated Using Nanoimprint Lithography,"  Journal of Vacuum Science and Technology, Nov/Dec 1998, pp. 3825-3829, vol. B 16(6).	
	A133	OHYA et al., "Development of 3-DOF Finger Module for Micro Manipulation," Proc. of the 1999 IEEE/RSJ, Intl. Conf. on Intelligent Robots and Systems, 1999, pp. 894-899.	,

Examiner		Date
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	4124	TANIKAWA et al., "Development of Small-Sized 3 DOF Finger Moldule in Micro Hand for Micro				
	A134	Manipulation," Proc. of the IEEE/RSJ, Intl. Conf. on Intelligent Robots and Systems, 1999, pp. 876-881.				
-	A135	COLBURN. et al., "Step and Flash Imprint Lithography: A New Approach to High-Resolution Patterning",				
	A133	Proc. of SPIE, 1999, pp. 379-389, vol. 3676.				
	A136	Lucas Aerospace, Free-Flex Pivot Catalog, 1999.				
	4407	GOLDFARB et al., "A Well-Behaved Revolute Flexure Joint for Compliant Mechanism Design," Journal of				
	A137	Mech. Design, Sept. 1999, pp. 424-429, vol. 121.				
	A138	Geodetic Technology, G1000-PC Power Series Specifications, 1999, from www.hexapods.com.				
	A139	Hexel Corporation, Tornado 2000 System Specifications, 1999, from www. Hexel.com.				
	A140	Physik Instruments, PI Online-Catalog, 1999, from www. Physikinstruments.com.				
		CHOU et al., "Lithographically-Induced Self Assembly of Periodic Polymer Micropillar Arrays," Journal of				
	A141	Vacuum Science and Technology, Nov/Dec 1999, pp. 3197-3202, vol. B 17(6).				
		RUCHHOEFT et al., "Patterning Curved Surfaces: Template Generation by Ion Beam Proximity Lithography				
	A142	and Relief Transfer by Step and Flash Imprint Lithography," Journal of Vacuum Science and Technology, 1999, pp. 2965-2982, vol. 17.				
	A143	Vanderbilt University Office of Transfer Technology, VU 9730 Specifications for Improved Flexure Device; 2001, from www.vanderbilt.com.				
	A144	STIX, "Getting More from Moore's," Scientific American, 2001, from www.scientificamerican.com.				

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<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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AATTENT &	RALL				Application Number	09/905,718
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•	STA	ATEMENT BY	/ Al	PPLICANT	First Named Inventor	Watts et al.
					Group Art Unit	1762
		(use as many sheet	s as r	necessary)	Examiner Name	Bernard D. Pianalto
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	1 445	CHOI et al., "High Precision Orientation Alignment and Gap Control Stages for Imprint Lithography	
	A145	Processes," U.S. Patent Application 09/698,317, Filed with USPTO on October 27, 2000.	,
,	A146	SREENIVASAN et al., "High-Resolution Overlay Alignment Methods and Systems for Imprint Lithography," U.S. Patent Application 09/907,512, Filed with USPTO on July 16, 2001.	
	A147	CHOI et al., "Method and System of Automatic Fluid Dispensing for Imprint Lithography Processes," U.S. Patent Application 09/908,455, Filed with USPTO on July 17, 2001	
	A148	WILLSON et al., "Step and Flash Imprint Lithography," U.S. Patent Application 09/908, 765, Filed with USPTO on July 19, 2001.	
	A149	CHOI et al., "Methods for High-Precision Gap and Orientation Sensing Between a Transparent Template and Substrate for Imprint Lithography," U.S. Patent Application 09/920,341, Filed with USPTO on August 1, 2001.	
	A150	Nguyen, A. Q., "Asymmetric Fluid-Structure Dynamics in Nanoscale Imprint Lithography," University of Texas at Austin, August 2001.	
	A151	CHOI et al., "Flexture Based Macro Motion Translation Stage," U.S. Patent Application 09/934,248, Filed with USPTO on Auguts 21, 2001.	
	A152	BAILEY et al., "Template for Room Temperature Low Pressure Micro- and Nano-Imprint Lithography," U.S. Patent Application 09/976,681, Filed with USPTO on October 12, 2001.	
	A153	WATTS et al., "Low Viscosity High Resolution Patterning Material," U.S. Patent Application 10/178,947, Filed with USPTO on June 24, 2002.	

Examiner	Date	
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